



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/618,996

07/14/2003

David F. Smith

020712

5961

21398

7590

11/29/2006

DICKIE, McCAMEY, & CHILCOTE, P.C.

ATTN: DARREN E. WOLF, ESQUIRE

400 TWO PPG PLACE

PITTSBURGH, PA 15222

EXAMINER

PAYNE, DAVID C

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/618,996

Applicant(s)

SMITH, DAVID F.

Examiner

David C. Payne

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 8 and 14 is/are rejected.
- 7) ☒ Claim(s) 2-7, 9-13 and 15-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 8 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by
Rowan et al. US 6407843 B1

Re claims 1, 8 and 14, Rowan disclosed,

FIG. 1 is a diagram of a system 100 in accordance with the present invention. The system 100 includes a transmitter 102, an optical fiber 104, and a receiver 106. The transmitter 102 is coupled to the receiver 106 by optical fiber 104.

The system 100 operates as follows. The transmitter 102 receives N digital data channels 110A-N (collectively, digital data channels 110) and combines them into a single optical signal for transmission over fiber 104. The transmitter 102 accomplishes this by using a combination of quadrature amplitude modulation (QAM) and frequency division multiplexing (FDM). The optical signal created by transmitter 102 is transmitted across fiber 104 to receiver 106. Receiver 106 then reverses the functionality of transmitter 102, converting the optical signal into N digital data channels 120A-N.

In a preferred embodiment which shall be referred to as the "N=64" or "K=64" embodiment, the digital data channels 110 include 64 STS-3 channels, each providing digital data at a rate of 155 million bits per second (Mbps) for an aggregate rate of approximately 10 billion bits per second (Gbps). In addition, the use of QAM modulation typically results in a bandwidth efficiency in the range of 2-5 bps/Hz, which is a significant increase over the typical 1 bps/Hz for conventional optical fiber systems; while the use of FDM allows the corresponding electronics to operate at 155 Mbps speeds, which is significantly lower than the 10 Gbps aggregate data rate. In alternate embodiments, the digital data channels 110 may be high speed channels which provide digital data at a predetermined, fixed rate, typically greater than 100 million bits per second (Mbps). For example, the digital data channels 110 may be OC-3 or STM-1 channels. Other protocols may also be supported, including, for example, higher data rate channels such as OC-12, OC-48, etc. The number N of digital data channels 110 may also vary. For example, in a variant of the N=64 embodiment, there are N=128 digital data channels 110 for an aggregate bit rate of approximately 20 Gbps. Digital data channels 110 which are in optical form, such as OC-3, may be converted to electrical form by an O/E converter stage coupled to the modulation stage 200, Col. 4 lines 1-40.

Allowable Subject Matter

3. Claims are 2-7, 9-13 and 15-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

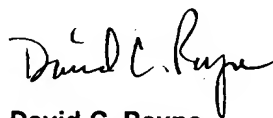
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7:00a - 4:30p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2613

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dcp



David C. Payne
Primary Examiner
AU 2613